REMARKS

Entry of the foregoing amendments, and reexamination and reconsideration of the subject application, and in light of the following remarks, are respectfully requested.

Amendments

Claims 1, 8, and 9 have been amended to remove references to "gel" or "intumescent" or "non-intumescent."

Claims 1, 8, and 9 also have been amended to recite that the resin intermediate layer is bonded between adjacent glass panels, support for which is found in the application at the third full paragraph of page 6 (a resin film placed between fireproof glass plates and thermo-compressed to form the structure depicted in Fig. 2).

Claims 1, 8, and 9 have been further amended to change "formed" to "deposited", as supported at least by the description at page three (lines 26-27: "these films can be deposited on the glass plate by sputtering, spraying, dipping, or the like").

Claim 13 depends from claim 8, which recites "a plurality of fireproof glass plates"; by definition a plurality includes two glass plates. The amendment to claim 13 clarifies that the heat reflection layer is disposed on one of the two plates of the plurality that is not attached to the additional plate. This amendment is thus believed supported.

No new matter is presented.

Rejections under 35 U.S.C. §112, second paragraphs

The foregoing amendment obviates the rejection of claim 13.

Rejections under 35 U.S.C. §112, first and second paragraphs

The rejections of claims 1, 2, 4, 6, and 8-13 hereunder are obviated by the present amendments. The phrase "in combination . . . product" has been deleted, thereby obviating these rejections.

Rejection under 35 U.S.C. §103

The rejections of claims 1, 2, 4, 6, and 8-13 as obvious over Friedmen *et al.*, in view of Hentzelt *et al.*, and further in view of Terneu *et al.*, Plumat *et al.*, Arfsten *et al.*, Benson *et al.*, and Stephens, is respectfully traversed in light of the present amendments and the following.

Prior to addressing the substance of these rejections, as now recited in amended claims 1, 8, and 9, the structure claimed is of a resin intermediate layer bonded directly

to adjacent glass plates. Because the resin layer is not only intermediate between the two plates but bonded directly to each, the claimed structure does not allow for any sort of intumescent layer between the adjacent plates sandwiching the resin intermediate layer, as depicted in Figs. 2 and 3. As explained in the last paragraph of the specification, such a structure has a high heat shielding effect upon an adjacent room, by both reflection of heat rays and blackening of the resin layer. Further, the claimed light transparency allows the status of the fire to be visually confirmed to facilitate lifesaving and firefighting, yet the article is light in weight and low in cost.

As noted above, the invention is now recited as a fire-protection panel that is devoid of an intumescent material, and the absence of such a material is critical for maintaining a visually transparent panel, for a predetermined time, so that "the status of fire can be visually confirmed to thereby facilitate lifesaving and fire fighting."

Turning to the substance of the rejections, the portion addressing the previous response questions whether the present claims affirmatively exclude an intumescent material by requiring that the resin intermediate layer be bonded to each of two adjacent panels, thus foreclosing any other layer with a gel or intumescent material between the adjacent glass plates or between the resin and one of the two plates. Hentzelt *et al.* teach that an intumescent layer is essential to their invention, and if present with a resin layer is provided on both sides of the resin layer between same and a glass plate (Figs. 1-3 and 5 therein). The claimed product achieves its advantages without an intumescent or gel layer, and such a material is now more particularly excluded by the amendments above.

Column one (lines 17-27) in Friedman *et al.* is clearly a teaching away from glazing having PVB or an intumescent material because it criticizes, discredits, or otherwise discourages the use of intumescent materials. *In re Fulton*, 391 F.3d 1195, 73 U.S.P.Q.2d 1141 (Fed. Cir. 2004). Note also col. 1 (ln. 35-36, underline added) of Friedman *et al.*, that in the '709 patent "the material intumesces, thus rendering it <u>useless</u> as a optical laminate." They teach that the prior art, including "a laminate of intumescent between vitreous glass . . . possess[es] <u>significant disadvantages that are inherent</u> in the construction and manufacture of the laminate." (Col. 2, ln. 10-18; underlining added.) Friedman *et al.* clearly teaches away from Hentzelt *et al.* It is necessary to distinguish between prior art, even if analogous prior art, and the particular prior art sought to be combined, because the latter is narrower. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick*, 464 F.3d 1356, 80 U.S.P.Q.2d 1641 (Fed. Cir. 2006). The reason behind that difference is to avoid hindsight reconstruction

by reading into the prior art the teaching of the invention at issue. *Graham v. John Deere Co.*, 383 U.S. 1 (1966). To assume what "disadvantages" one is willing to accept, as alleged in the rejection, is hindsight reconstruction when it directly contradicts both the discouragement explicit in the teachings of the reference sought to be combined and particular objects of that reference (such as optical clarity).

This disclosure by Friedman *et al.* is directly contrary to the teachings of Hentzelt *et al.*, where the only examples and disclosure is of an intumescent layer (Description running from col. 4, ln. 57, to col. 5, ln. 50, describing Figs. 1-5). "When a fire-screening panel according to [Example 1 in Hentzelt *et al.*] is subjected to the action of fire, the layer of hydrated sodium silicate applied to the sheet closest to the fire is converted to an opaque porous fire-screening barrier of anhydrous sodium silicate." (Hentzelt *et al.*, col. 6, ln. 29-33.) The sole independent claim and the abstract in Hentzelt *et al.* require an intumescent material. Therefore, an intumescent material is a necessary and indispensable part of the Hentzelt *et al.* teachings. The amendments to claims 1, 8, and 9 now positively exclude an intumescent material and distinguish Hentzelt *et al.*

The rejection alleges that the surface treatment disclosed by Friedman *et al.* includes the claimed surface coating. Yet the only treatments described as contemplated for use by Friedman *et al.* are the corona surface treatment (Summary and Example 13) and a cross-linking "treatment" (col. 4, ln. 26). In the absence of the corona treatment, the polymer film blistered (Ex. 13). Claims 1, 8, and 9 have been amended to particularly recite that the heat-ray reflection film is a structurally separate layer "deposited on" a glass panel, which distinguishes a "treatment" of the film, like a corona treatment, that does not add a material layer. The disclosure at col. 6 (ln. 26) of Friedman *et al.* is no more than a suggestion to experiment with unspecified "treatments" for "abrasion resistance, heat reflectance, and the like." Friedman *et al.* do not disclose any physical coating.

Applicants reiterate that merely shielding or reflecting heat rays is an unwarranted simplification as a basis in the present rejections for using secondary references disclosing solar-reflecting glazing. Sunglasses and darkened glass specifically for viewing a solar eclipse are analogous in some respects, but are not directed to the same problem. Identically, a fire protection glass that prevents the spread of fire ignited by heat rays is not directed to the same problem as keeping a building cool during ambient conditions. The wavelengths and intensities of heat rays from fire are distinctly different from those of solar radiation, hence the present claims

specifically recite the reflectances of particular fire-related heat ray wavelengths and the transmittance of visible light.

Finally, Friedman *et al.* teach away "laminates of fluorocarbon resins adhered at high temperatures and pressures onto specially formulated glass" (col. 2, ln. 15-16), *viz.* the thermo-compression described at page 6 forming the basis for particular amendments now made. Thus, Friedman *et al.* teach away from the claimed "fluorocarbon" resin and thermocompression process because it would "possess significant disadvantages that are inherent in the construction and manufacture of the laminate." (Col. 2, ln. 17-18.) Applicants have unexpectedly found the contrary. Table 1 (page 8) shows that significant IR radiation is reflected by the product made in the examples while maintaining good transmittance of visible light. One problem is that the hotter an object the shorter the wavelength of light emitted, yet continuing to reflect ever shortening wavelengths would end up reflecting visible light. Friedman *et al.* teaches that the results achieved by applicants would not have been expected for such a laminated structure.

In light of the interview, the informally proposed claims are not submitted, and the claims are presently amended to recite a structure that necessarily excludes both gel and intumescent materials between adjacent plates adhered to the same resin intermediate layer. The portion of Friedman *et al.* believed to specifically teach away from a laminated fluorocarbon resin is believed to overcome rejections based on non-use of intumescent materials.

In light of the foregoing, withdrawal of all of the rejections is now believed to be warranted.